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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/495,886	02/01/2000	Victor Alfaro	60970047-1	5423

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EXAMINER

MOUTTET, BLAISE L

ART UNIT PAPER NUMBER

2853

DATE MAILED: 10/24/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/495,886

Applicant(s)

ALFARO ET AL.

Examiner

Blaise L Mouttet

Art Unit

2853

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 August 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☒ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on August 22, 2002 has been entered and has overcome the prior rejection. A new rejection follows.

Drawings

2. This application has been filed with informal drawings which are acceptable for examination purposes only. Formal drawings will be required when the application is allowed.

Claim Objections

3. Claims 1-14 objected to because of the following informalities:

In claim 1, line 4 "thereby" should read --by-- (see attached interview summary).
Appropriate correction is required.

Claim Rejections - 35 USC § 102

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The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

4. Claims 1-4, 7, 8 and 10-14 are rejected under 35 U.S.C. 102(e) as being anticipated by Klassen US 5,742,300.

Klassen discloses a technique for bilevel printing of an image or figure comprising:

providing an inkjet printhead (34) having a nozzle pitch of a first resolution of 300 dpi (column 1, lines 31-42, column 3, lines 24-33);

creating a higher resolution bitmap of 600 dpi which resolution is higher than the first resolution (see figures 3A and 3B, column 3, lines 64-65);

eliminating alternate pixel rows from the higher resolution bitmap by converting the higher resolution bitmap for printing onto an asymmetrical pixel grid having the first resolution in one axis and the higher resolution in a second axis (see figure 3C and 3D, column 5, lines 14-34), wherein said converting includes applying a depletion pattern only in the axis of higher resolution (i.e. the horizontal raster scan axis of figures 3C and 3D as described in column 5, lines 14-34).

Regarding claim 2, a narrowing process is applied only in the axis of higher resolution while conserving vertical edge pixels (see S104 in figure 2 and column 4, lines 8-15).

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Regarding claims 3 and 4, the converting includes applying a logical operation on rows of the higher resolution bitmap to determine whether or not to preserve any "on" pixels in the eliminated rows and the logical operation is performed on one of the eliminated rows and its two adjacent rows (column 4, line 60 - column 5, line 5).

Regarding claims 7, 8 and 10, the first resolution is 300 dpi and the higher resolution is 600 dpi in the horizontal inkjet scanning direction (column 1, lines 31-42, column 3, lines 34-44).

Regarding claim 11, the bitmap is monochrome as indicated in column 4, lines 16-27.

Regarding claims 12-14, individual "on" pixels are transferred from an eliminated row to an adjacent non-eliminated row if there is a predetermined number of "off" pixels on the two adjacent rows (column 4, lines 28-59).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Klassen US 5,742,300 in view of Deshpande US 5,160,577.

Klassen discloses that the described method is applicable to various printing resolutions (column 3, lines 41-44).

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Klassen fails to disclose that the first resolution associated with the nozzle pitch is approximately 600 dpi.

Deshpande discloses a nozzle pitch of 600 dpi (column 4, lines 44-52).

It would have been obvious for a person of ordinary skill in the art at the time of the invention to utilize an inkjet printhead with a nozzle pitch of 600 dpi in the method of Deshpande.

The motivation for doing so would have been to achieve a higher resolution and thus improve print quality.

6. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Klassen US 5,742,300 in view of Deshpande US 5,160,577, as applied to claim 5, and further in view of Kanematsu et al. US 6,183,055.

Klassen discloses that the described method is applicable to various printing resolutions (column 3, lines 41-44).

Klassen in view of Deshpande fail to disclose that the asymmetrical grid is 600 dpi in the media advance axis and 1200 dpi in the carriage scan axis.

Kanematsu discloses a bitmap for an inkjet printer that is 600 dpi in the media advance axis and 1200 dpi in the carriage scan axis (column 8, lines 33-39).

It would have been obvious for a person of ordinary skill in the art at the time of the invention to form the asymmetrical grid of Klassen in view of Deshpande as 600 dpi in the media scan axis and 1200 dpi in the carriage scan axis.

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The motivation for doing so would have been to achieve a higher resolution and thus improve print quality.

7. Claims 9 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Klassen US 5,742,300 in view of Rylander US 5,602,572.

Klassen discloses, regarding claim 15, a method of achieving high quality printing from one or more printheads having a given nozzle pitch resolution, comprising:

creating a first bitmap having a resolution (600 dpi) which is a multiple of the given nozzle pitch resolution (300 dpi) (see figures 3A and 3B, column 1, lines 31-42, column 3, lines 64-65);

transforming the first bitmap by eliminating certain pixel rows in order to create an asymmetrical bitmap for printing on a pixel grid having a higher resolution in a carriage scan axis and a lower resolution in a media advance axis (see figure 3C and 3D, column 5, lines 14-34); and

performing a logical operation on an eliminated pixel row and two of its adjacent pixel rows in order to preserve an "on" pixel from the eliminated pixel row and transfer it to an "off" pixel in one of said two adjacent pixel rows (column 4, lines 28-59).

Klassen discloses that the described method is applicable to various printing resolutions (column 3, lines 41-44).

Klassen fails to disclose, regarding claims 9 and 15, that the higher resolution bitmap/first bitmap is symmetrical.

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Rylander discloses that bitmap data for an inkjet printer may be equivalently generated by increasing from 300 dpi to 600 dpi symmetrically in both directions, from 300 dpi to 600 dpi in a single vertical direction or from 300 dpi to 600 dpi in a single horizontal direction (column 6, line 60 - column 7, line 19).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to form the higher resolution bitmap of Klassen to be symmetrical (600dpi x 600 dpi) as taught by Rylander as an alternative to the 300 dpi x 600 dpi bitmap utilized by Klassen.

The motivation for doing so would have been to obtain a higher resolution and thus improve print quality.

Additional Prior Art

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Walsh et al. US 4,437,122 discloses comparing pixel data from a raster line with previous and succeeding raster lines to improve visibility and smooth the edges of a printed figure.

Lund et al. US 5,270,728 discloses performing various logical operations to pixel rows in a raster line in order to avoid the formation of white gaps or ink drop overlap in an inkjet printer.

Chen et al. US 5,502,762 discloses reducing pixel density along one or plural axis by implementing depleting algorithms for raster data.

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Klassen et al. US 5,677,714 discloses vertical edge enhancement techniques for high resolution image processing algorithms in an inkjet printer.

Contact Information


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Blaise Mouttet whose telephone number is (703) 305-3007. The examiner can normally be reached on Monday-Friday from 8:30 a.m. to 5:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John E. Barlow, Jr. Art Unit 2853, can be reached on (703) 308-3126. The fax phone number for the organization where this application or proceeding is assigned is (703) 305-3432.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Blaise Mouttet October 9, 2002

Bm 10/9/2002


John Barlow
Supervisory Patent Examiner
Technology Center 2800